

# Alternative Work Schedules

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A REPORT  
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TRANSPORTATION TASK FORCE  
OF THE

**URBAN**  
**CONSORTIUM**  
FOR TECHNOLOGY INITIATIVES



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## FOR TECHNOLOGY INITIATIVES

The Urban Consortium for Technology Initiatives was formed to actively pursue technological solutions to pressing urban problems. The Urban Consortium is a coalition of 34 major urban governments, 28 cities and 6 counties, with populations over 500,000. These 34 governments represent over 20% of the nation's population and have a combined purchasing power of over \$25 billion.

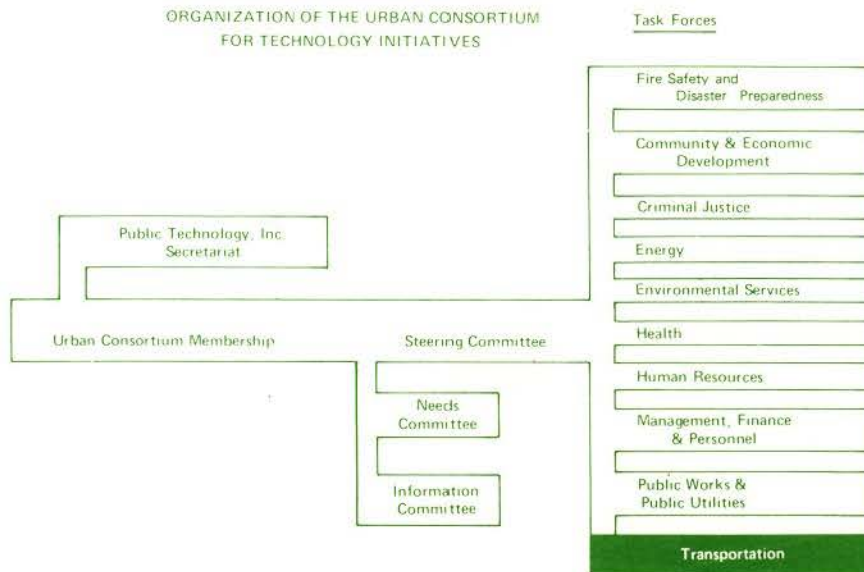
Formed in 1974, the Urban Consortium represents a unified local government market for new technologies. The Consortium is organized to encourage public and private investment to develop new products or systems which will improve delivery of local public services and provide cost-effective solutions to urban problems. The Consortium also serves as a clearing-house in the coordination and application of existing technology and information.

To achieve its goal, the Urban Consortium identifies the common needs of its members, establishes priorities, stimulates investment from federal, private and other sources and then provides on-site technical assistance to assure that solutions will be applied.

Public Technology, Inc. (PTI), a non-profit, tax-exempt, public interest organization serves as Secretariat to the Urban Consortium. PTI was established in December 1971, by The Council of State Governments, The International City Management Association, The National Association of Counties, The National Governors' Conference, The National League of Cities and The U. S. Conference of Mayors. The staff of PTI provides both technical and organizational services to the Urban Consortium and its Task Forces.

The work of the Urban Consortium for Technology Initiatives is focused through the ten Task Forces shown below. These Task Forces were formed as a result of the needs identification process used by the Consortium. An eleven member Steering Committee, whose members are chosen from among the participating jurisdictions, guides the activities of the Urban Consortium for Technology Initiatives.

ORGANIZATION OF THE URBAN CONSORTIUM  
 FOR TECHNOLOGY INITIATIVES



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This report is a product of the activities of the Transportation Task Force. The work has been supported by the U. S. Department of Transportation; Office of the Secretary, Urban Mass Transportation Administration and Federal Highway Administration.

# Alternative Work Schedules

February 1978

Prepared by

PUBLIC TECHNOLOGY, INC.  
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Secretariat  
to the

URBAN CONSORTIUM FOR TECHNOLOGY INITIATIVES

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## PREFACE

This is one of eight in the second series of Information Bulletins produced by the Transportation Task Force of the Urban Consortium for Technology Initiatives. Each Bulletin in this series addresses a priority transportation need area identified in the second annual needs selection by member jurisdictions of the Urban Consortium. The Bulletins are prepared by the staff of Public Technology, Inc. (PTI) for the Transportation Task Force.

The transportation needs which this second series of Information Bulletins covers are:

- Accelerated Implementation Procedures
- Center City Circulation
- Neighborhood Traffic Controls
- Parking Management
- Transit Marketing
- Alternative Work Schedules and their Effects  
on Transportation Services
- Traffic Performance Measurements
- Urban Goods Movement

The needs highlighted by the Information Bulletins are selected in an annual process of needs identification used by the Urban Consortium. By identifying and then focusing on the priority needs of member jurisdictions, the Consortium assures that resultant research and development efforts are directly responsive to existing or anticipated local governmental problems.

Each Bulletin provides a non-technical overview, from the local government perspective of issues and problems associated with each need. Current research efforts and approaches to the problem used by local governments are also briefly identified. The Bulletins are not meant to be an in-depth review of the state-of-the-art or the state-of-the-practice. Rather, they serve as an information base from which the Transportation Task Force selects several needs for more attention. The Information Bulletins have also proved useful to persons such as elected officials for whom transportation represents but one of many areas of concern.

The results of the needs selection process used by the Urban Consortium have been promising. Of the ten priority needs identified in the first annual needs selection, four were addressed by subsequent Transportation Task Force projects:

- To pursue the need for Preferential and Exclusive Lanes, a Manual for Planning and Implementing Priority Techniques for High Occupancy Vehicles (composed of a Chief Executive Report, Program Manager's Report, and Technical Guide) was developed. The methodology outlined in the manual is now being tested in Buffalo, St. Louis, San Francisco, and San Jose. A revised manual based on these demonstrations will be available in July, 1978.

- A National Conference on Transit Performance was organized to address the need for Transit System Productivity. The Conference, held in Norfolk, Virginia, in September, 1977, was attended by 200 government, industry, labor, and academic participants.
- To facilitate the provision of Transportation for Elderly and Handicapped Persons, an outline for a manual on techniques of providing such transportation services is being developed.
- Finally, two documents relating to the need for Transportation Planning and Impact Forecasting Tools are being prepared: (1) a paper describing local transportation planning issues and concerns directed to the Urban Mass Transportation Administration (UMTA); and (2) a management-level document for local officials describing UMTA's currently available tools and how they can be applied in local government.

Of the remaining six needs identified in the first annual selection, two remained as priority needs in the second annual needs selection. The Information Bulletin for "Integration of Paratransit with Conventional Transit Systems" was included in the first series of Bulletins and will be revised as necessary. The Information Bulletin for "Accelerated Implementation Procedures" is part of this second series of Bulletins.

For the remaining four needs, the Transportation Task Force felt that current research directed toward them was adequate and that the Information Bulletins themselves fulfilled the Task Force's information dissemination goals. Thus, these needs have been dropped from the priority list.

It is hoped that further research projects will be directed to the new priority transportation needs of the Urban Consortium for Technology Initiatives.

The support of the Technology Sharing Division, Office of the Secretary; Federal Highway Administration; and the Urban Mass Transportation Administration of the U.S. Department of Transportation has been invaluable in the work of the Transportation Task Force of the Urban Consortium for Technology Initiatives and its staff from Public Technology, Inc. The guidance offered by the Task Force members will continue to insure that the work of the staff will meet the urgent needs which have been identified by members of the Urban Consortium for Technology Initiatives.

The members of the Transportation Task Force are listed below:

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>● Alan Lubliner (Chairperson)<br/>Chief, Transportation Planning<br/>City of San Francisco<br/>San Francisco, California</li> </ul> | <ul style="list-style-type: none"> <li>● Stewart Fischer (Vice Chairperson)<br/>Director, Traffic &amp; Transportation<br/>Department<br/>City of San Antonio<br/>San Antonio, Texas</li> </ul> |
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## TABLE OF CONTENTS

<u>Chapter</u>		<u>Page</u>
I	ISSUES AND PROBLEMS	1
	General Considerations	2
	The 4-Day/40-Hour Workweek	3
	Staggered Hours	6
	Flextime	8
	Conclusion	9
II	CONTACTS AND CURRENT PROBLEMS	11
	Contacts	11
	Current Programs	11
III	ANNOTATED BIBLIOGRAPHY	17
	General	17
	Flextime	18
	Impacts	19
	User Experiences	20



CHAPTER I  
ISSUES AND PROBLEMS

Peak period congestion is a major concern of those responsible for urban transportation planning and the operation of urban street, highway, and transit systems. There are two reasons for this:

1. Significant social, economic, and environmental disbenefits result from the inability to move persons and goods freely throughout a metropolitan area at optimum rates of speed.
2. Capital and operating expenses needed to enable transportation facilities to meet peak period demand are extremely high and growing.

One of the most effective means of evening out peak period congestion is to reduce the number of trips occurring during those critical periods. This can be accomplished by spreading the trips over a longer period of time--i.e., by changing the hours of employment so that many home-to-work trips occur outside of the normal peak periods. Strategies designed to do this are commonly described as alternative work schedules.

While the primary purpose of this Information Bulletin is to examine the transportation implications of alternative works schedules, it must be pointed out that such schedules have serious impacts outside of transportation which should not be overlooked in evaluating them. Alternative work schedules are generally devised for three reasons:

1. To improve the lifestyle of workers by providing for a more flexible use of leisure time;
2. To improve worker and organizational productivity; and\*
3. To spread out congested peak period transportation demand.

A serious and tricky problem with alternative work schedule strategies is the fact that they may have negative impacts on transit and car-pooling, depending upon how the strategies are designed and applied, and upon the particular characteristics of each alternative. Whether a strategy is applied to all or only a portion of the work force, and whether compliance is mandatory or voluntary, determine whether it will have positive or adverse consequences on transit

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\*This is not to be confused with transit productivity.

performance.<sup>1</sup> This situation is complicated by the lack of data in this area, and by the fact that no extensive area-wide experiments with alternative work schedules have been conducted in this country. And this complexity is further compounded by what may be called a "ricochet" effect, whereby the immediate impacts of a strategy have further impacts, and so on. Thus, with the lack of data and experience in this area, it is almost impossible to accurately predict the consequences of any but the simplest strategies.

#### GENERAL CONSIDERATIONS

An important concern of those planning alternative work schedule strategies is the concept of latent demand--the tendency of potential motorists to gradually fill up any roadway space--and thus erase any traffic flow gains--made vacant by transportation improvements. Little is known about latent demand, so we cannot determine to what extent former transit, carpool, or non-trip takers will fill up the space, nor how long such a process will take, nor how many will switch from each mode (or non-mode). As a result, the long term effects of an alternative work schedule strategy are not possible to establish.<sup>2</sup>

Another area of major concern is that of transit financial performance. A stated goal of any alternative work schedule is the spreading out of demand to where it can be met by fewer vehicles (and drivers), loaded to capacity, for a longer time period. If this happens, financial performance will certainly improve. Unfortunately, a poorly conceived and controlled strategy (or one not aimed at improving transit performance) could easily result in significant ridership shifts from transit to other modes, especially private automobile. This could reduce peak period load factors along heavily-travelled routes, resulting in a tremendous loss of revenue while gaining few off-peak riders, while not allowing for a significant reduction in the number of peak period vehicles. Because of the uncertainty about the effects of latent demand, even the most ingeniously conceived strategies may potentially "backfire"--i.e., not accomplish their transportation objectives.

Another problem is the effect of such strategies on workers' lifestyles, and how such effects are perceived by organized labor--both inside and outside the transit industry. Ostensibly, any strategy which improves the financial performance of transit should be a benefit to transit labor, and welcomed by it. Yet certain alternatives like the 4 day/40 hour week are viewed as regressive by labor in general (e.g., this alternative could reduce overtime), and possibly by transit labor (if, e.g., many workers reduced their workdays to straight 8 hour shifts, losing the wage benefits from an 11½ hour spread).

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<sup>1</sup>Transit performance is a composite term consisting of effectiveness (how well transit meets its goals and objectives), efficiency (the way in which it meets these goals and objectives), and financial performance (the cost/revenue implications of the service).

<sup>2</sup>It must also be noted that latent demand is generally thought to promote a greater mode split to automobile from bus transit riders than from rail transit riders, the primary reason being that rapid rail competes more favorably with the automobile in terms of travel time.

Thus, labor/management negotiations must be a major component of implementing any alternative work schedule strategy.

Because any strategy will necessarily impact many people beyond transit users, it should be understood by, and acceptable to all affected employers, employees, business and labor officials, local government officials, retail customers, and residents and community leaders, as well as traffic planners and engineers and transit managers. Whenever possible, strategies should be designed to benefit as many of these groups as possible, and an attempt should be made to render the less obvious benefits visible to those who will receive them.

Finally, the potential impacts of any strategy should be evaluated against broad community and national goals. For example, a conflict might arise where a 4 day/40 hour week generates a large number of additional weekend recreational trips, greatly increasing overall congestion levels and the consumption of energy, and adding to enforcement and maintenance costs and accidents along major freeways and arteries.

The way in which certain alternative work schedules fulfill certain objectives while undermining others suggests that planners and implementors should exercise great caution in planning and applying these schedules, and should design them with maximum flexibility.

This information Bulletin discusses the three most common alternative work schedules:

- the 4-day/40 hour week
- staggered hours
- flextime

#### THE 4-DAY/40 HOUR WORKWEEK

The 4-day/40 hour workweek is a fixed work schedule in which the workweek is divided into four 10-hour days instead of the traditional five 8-hour days. There are two basic versions: (1) the consecutive 4-day work week, and (2) the non-consecutive 4-day work week. The distinction between these two versions is significant in that each meets the overall objectives of alternative work schedule strategies (see page 2) quite differently.

#### Benefits

The financial performance of most businesses should improve with either version of the 4-day/40 hour workweek. Start up and shut down times could be reduced by 20%. And with equipment operating 50 hours per week instead of the traditional 40, capital costs might also be reduced. For those businesses remaining open all 5 weekdays (as opposed to a business-wide 4-day work week), customer and business access could be expanded by 20%. Finally, given a more

flexible work schedule, absenteeism, tardiness and personnel turnover would very likely decrease, further improving productivity.<sup>3</sup>

Either version should also provide employees with a better use of leisure time, although the benefits would be greater for those with a 3-day weekend. Most likely, given a choice, workers would probably opt for the 4-consecutive-work-day approach.

Transit benefits would likely accrue from a 4-day/40 hour week only if the weekdays off are evenly spread among employees, and if the strategy is imposed on a large portion of the total work force. If imposed on most of the work force (an unrealistic assumption), the strategy could reduce peak period traffic volumes by close to 20%<sup>4</sup> only if latent demand has negligible impact. If latent demand is significant, this could erase any transportation productivity gains of the strategy. More realistically, if the strategy were imposed on only a portion of the work force, the reduction in peak traffic volume would be slight, and probably easily erased by a minor assertion of latent demand.

### Problems

While there are definite areas of productivity gain on a 4-day/40 hour workweek, worker productivity in general might possibly decline. Few studies have been done in this area. However, one study of physical labor conducted decades ago indicates that the final hour of production on a 10-hour workday falls off much more sharply than the final hour of an 8-hour workday (see Figure 1)--although this is compensated for somewhat by the fact that there are only 4 of these "final hours" in a 4-day workweek.

In addition, most industrial psychologists believe that workers tend to prorate their energies for a specific task over the work period. Thus, with tasks allocated on a daily basis, workers would work slower per hour on a 10-hour day than on an 8-hour day.

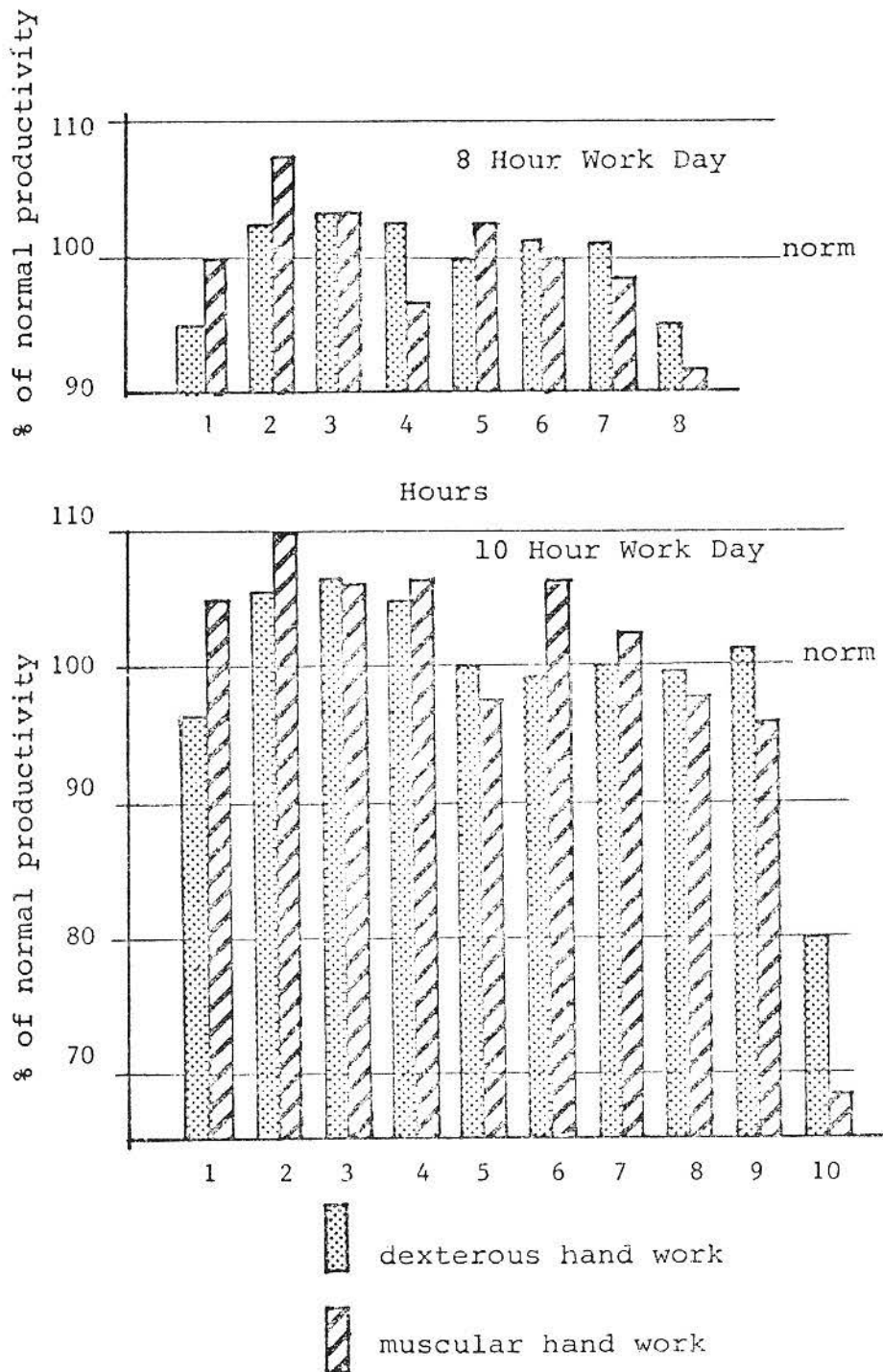
Another productivity loss would occur in businesses where employees frequently work uncompensated overtime ("staying late at the office"). Understandably, employees would work less overtime beyond a 10-hour day than an 8-hour day, and would not likely compensate by working during their additional day off--especially if it were part of a 3-day weekend.

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<sup>3</sup>In 1927, Elton Mayo, then a professor of Industrial Research at Harvard Business School began experiments to understand and record the impacts of changes in lighting, rest periods, hours, and economic incentives upon worker productivity. The researchers concluded that these techniques had little impact on worker productivity, but the reason for improved productivity was the increase in worker participation in the workplace, or his sense of belonging to, and of being important to, a cooperative effort (i.e., the experiment itself).

<sup>4</sup>It could never reach 20% because all peak hour trips are not home-based work trips.

Fig. 1 : Comparison of Production on 8 and 10 Hour Days.<sup>1</sup>



<sup>1</sup>Ghiselli and Brown, Personnel and Industrial Psychology, p. 241.

Finally, a 10-hour day may be a considerable strain on many workers, depending of course on the type of work. In jobs where exposure to hazardous materials or equipment is intrinsic to the occupation, risks are certain to increase with a longer work day. And fatigue in general may have long-range deleterious consequences on many individuals.

It is also foreseeable that different degrees of absenteeism might occur with the non-consecutive-workday version, especially from workers with either Tuesday or Thursday as the designated day off. The temptation to create a 4-day weekend by missing only 1 day of work (Monday or Friday) might be hard to resist (unless of course the days off were rotated among workers each week).

The transportation problems created by the 4-day/40 hour workweek are severe regardless of which version is used. As we stated earlier, if the days off are distributed evenly among employees, latent demand could potentially erase any gains in roadway space, as well as significantly decreasing transit and carpool ridership. And if workers are allowed to choose their own day off--and assuming most would prefer Monday or Friday, to optimize their use of leisure time--then demand for transit would only be high three days a week--a situation with serious consequences on transit financial performance. Regardless of the version of 4-day/40 hour workweek used, the duration of the peak period would decline sharply. Instead of working hours being somewhat staggered between ranges of 7:30 to 4:00 and 9:30 to 6:00, as they are now, most businesses would probably begin between 7:30 a.m. and 8:00 a.m., and end between 5:30 p.m. and 6:30 p.m. (depending upon lunch time allotments). Such extreme peaking would have disastrous consequences on transit labor productivity and financial performance.

Finally, organized labor tends to view the 4-day/40 hour work week as regressive. Throughout the history of labor relations, efforts have always been directed at shortening both the workweek and the workday. The 4-day/40 hour workweek accomplishes one at the expense of the other.<sup>5</sup>

#### STAGGERED HOURS

On a staggered hours work schedule, employees work for a given period of time within an established range, constrained only by a set of core hours common to all. For example, if the core hours are 11 a.m. to 3 p.m., the period 8 hours, and the range from 7:00 a.m. to 7:00 p.m., workers might begin work at any time between 7:00 a.m. and 11 a.m., and finish work 8 hours later. To have a program fully implemented, only a fraction of all workers need adjust their hours significantly from the conventional 9:00 a.m. to 5:00 p.m. range. For those who must, enough flexibility would be provided to enable participants to choose a schedule compatible with their needs, desires, and physiological tendencies (late sleepers, early risers).

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<sup>5</sup>Initial labor reaction to the 4-day work week might be overcome if the total work hours per week were reduced or if workers were to continue to earn two hours overtime pay after eight hours of work. These changes in the labor agreement would, of course, offset productivity gains hoped for by management.



## Benefits

The most apparent benefits to the staggered hours strategy relate to ease of application and acceptance by workers. Since only a portion of the work force need adjust its working hours, and because those adjusting can usually accommodate their lifestyles and physiological preferences quite easily, most staggered hours programs implemented in recent years have been well received by those participating.<sup>6</sup> Also, such programs meet with little or no resistance from organized labor (as long as the stagger is not imposed). And since many workers choose to work during more alert periods of their sleep-wakefulness cycle, worker productivity has not suffered.

## Problems

Staggered hours programs create many serious problems for transit productivity, primarily because so little is known about the impacts of such programs and factors like latent demand. With such a narrow data base and limited set of experiences from which to draw conclusions, it is impossible to design a staggered hours program which will have clear and significant transit impacts that can be relied upon. On one hand, productivity savings could accrue, as the peak periods are extended, and consequently served by fewer vehicles and drivers operating at capacity for longer periods of time than normally. However, reverse mode split could occur, and ridership could decline, especially during hours outside of the traditional peak periods (7:00 to 9:30 a.m.; 4:00 to 6:30 p.m.). Thus, vehicles could end up operating during traditional peak periods at much lower load factors (unless vehicles are removed from service), with little compensatory gains during the "off-peak" periods. The great number of variables here--type of staggered hours program, level of participation, severity of latent demand, response of transit operators to the new schedule, present load factors, congestion levels on the street system, existence or non-existence of rapid rail transit, physical characteristics of the urban area, demographics--work against the ability to predict impacts and design a strategy accordingly.

Another minor problem is that the objectives of any alternative work schedule are in conflict with a staggered hours approach. In order to improve productivity, and not suffer because of communication gaps resulting from a crew of workers who don't interface often enough, employers in many professions would tend to establish a broad "core" of hours. Unfortunately, the broader this core, and consequently, the smaller the stagger, the less positive impact the strategy might have on transit performance. This dilemma suggests that the implementation of such a strategy should include an attempt to identify those businesses where lack of employee interfacing is not a serious problem, and to maximize the off-peak participation of workers from those businesses.

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<sup>6</sup>New York City, which implemented a staggered hours program in 1970, has surveyed both employer and employee reaction to the program. Eighty-five percent of the employees had a favorable reaction, eighty percent say that they are most satisfied with their morning and afternoon work trip. Eighty-six percent of the managers sampled said they showed gains in productivity, and eighty-five percent reported no additional communication problems.

## FLEXTIME<sup>7</sup>

A flextime program is a refinement of a staggered hours program whereby workers are afforded a daily flexibility in work start times (stop times are calculated from start times), which need not be convenient clock face intervals (9:15, 9:30, 9:45, etc.).

### Benefits

Lifestyle benefits are immediately apparent. For one thing, workers need not leave for work "a few minutes early" to ensure on-time arrival, since they are only "late" if their arrival penetrates the core period. Thus, most worker tardiness disappears by definition. Experience with flextime has indicated that most employees like the programs, although the majority of them don't significantly alter their working hours.<sup>8</sup> Instead of interrupting the work day for necessary activities (doctors visits, car inspection, auto repairs, haircuts, etc.), employees can accommodate their non-work needs comfortably outside of their work schedule. And potential transit ridership gains might accrue since transit service, which may be perceived as unreliable, would no longer deliver an employee "late", since by definition he or she can't be late. Finally, flextime affords the same worker productivity gains as staggered hours programs, except where interfacing problems result.

### Problems

The most serious problem with flextime is that monitoring employees is difficult or impossible, except in cases of clock-punching. Yet companies which have operated on flextime have found only negligible cheating when employees were asked to sign in and out.<sup>9</sup>

Another problem is that flextime may not work for production line situations.<sup>10</sup> However, European experience with flextime strategies have shown that it works well in research and development and other professional settings with less formal and rigid interfacing requirements.

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<sup>7</sup>Referred to as "Flexihours" in Great Britain, and much of Europe.

<sup>8</sup>The Smithline Corporation of Philadelphia, a pharmaceutical company using flextime, found that approximately two-thirds of its employees arrive regularly between 8:30 and 9:30 a.m., with the remaining third arriving, evenly distributed, between 7:30 and 8:30 a.m. Less than 2% of all employees arrive "at the last minute".

<sup>9</sup>The Metropolitan Life Insurance Company, in Manhattan, has had 11,000 employees on flextime for 2 years; little cheating has occurred.

<sup>10</sup>Alfred Warren, Jr., Director of Personnel for General Motors Corporation, contends that it will not work in such situations.

Another problem is that with all its complexity and flexibility, flextime offers no significant transportation benefits over conventional staggered hours programs. Because traffic movement is neither precise nor predictable on a detailed level, the benefits that seem to accrue theoretically from such a strategy cannot be realized. So while the flexibility of this strategy seems to offer greater freedom in organizing car- and vanpools, the strategy will not likely yield any benefits not possible by a group of persons on a staggered hours program who occupy the same stagger.

## CONCLUSION

The planning and implementing of alternative work schedule strategies are obviously difficult and complex tasks. While most strategies offer definite lifestyle and worker productivity benefits, the transportation payoffs are questionable and almost impossible to predict with any degree of accuracy, as are impacts on energy consumption, air quality, and general congestion.

Despite these difficulties, alternative work schedule strategies hold tremendous potential for improving traffic flow in general, regardless of their transit impacts. Because of this, and because of the potential magnitude of a strategy's overall benefits were it properly and extensively applied, much further research, and perhaps demonstrations, should be conducted in this area. With more data and more experience, alternative work schedules could be designed to make major contributions to transportation systems in major U. S. cities.



## Chapter II

### CONTACTS AND CURRENT PROGRAMS

#### CONTACTS

Responsibility for alternative work schedule programs on the Federal level is shared by various offices in the Urban Mass Transportation Administration and the Federal Highway Administration. Please note that Urban Mass Transportation Administration (UMTA) staff is housed in two offices:

- Departmental Headquarters (DOT)  
Nassif Building  
400-7th Street, S.W.  
Washington, D.C. 20590
- TransPoint Building (TRPT)  
2100-2nd Street, S.W.  
Washington, D.C. 20590

Also, please note that the code following each name is for identification and should be included in written correspondence.

#### CURRENT PROGRAMS

##### Baltimore Regional Planning Commission

The Baltimore Regional Planning Commission is currently studying the feasibility of alternative work schedules in the Baltimore Region. RPC is surveying a number of employers (200+ employees) about their interest in such a program, and about any problems which such programs might present to them, and then plan to evaluate the potential impacts which various program alternatives -- at different levels of participation -- might have on the transportation system and the community at large. They plan to base their analysis on a market segmentation approach.

For further information contact: Ms. Beata Lamparski, Transportation Division, 701 St. Paul Street, Baltimore, Maryland 21202. (301) 383-5822.

##### City of Toronto Housing Department

Mr. Frank Mills managed a comprehensive alternative work schedule program while formerly with the Ontario Habitat Foundation. While aimed at reducing peak period congestion, OHF approached the program from the viewpoint of encouraging workers and employers to change working hours because of lifestyle and productivity benefits. OHF interviewed potential employers, helped them choose appropriate programs, and provided technical assistance in setting them up. 70,000 of Toronto's 260,000 downtown employees participated, more than half of which began work before the traditional peak period. Documentation is available from Mr. Mills.

For further information contact: Mr. Frank Mills, Housing Department, City Hall, 18th Floor, East Tower, Toronto, Ontario, Canada, (416) 367-7941.

#### Civil Service Commission

The Pay and Leave Administration exercises administrative control over work hours programs for all Federal agencies. It has the policy responsibility for planning and advising all agencies on the feasibility of implementing alternative work schedules, and for providing technical guidance to those doing so. They also refer non-Federal agencies to specific publications and other agencies for appropriate assistance. Finally, PLA prepares legislation which will make flexitime and other programs more readily available to Federal employees.

For further information contact : Ms. Barbara Fiss or Mr. Woodrow Fein, Civil Service Commission, Pay and Leave Administration, Room 3H-300, 1900 E Street, N. W., Washington, D. C. 20415, (202) 632-5604.

#### Delaware Valley Regional Planning Commission

DVRPC has been working since 1970 to develop and implement alternative work schedule programs for Philadelphia's downtown core. Following an FHWA "Urban Corridor Demonstration Program" grant (for DVRPC, in 1972) and an UMTA grant for the Chamber of Commerce, the two agencies established a Staggered Hours Work Committee (interdisciplinary), began breakfast meetings with local business leaders and employers, conducted follow-up programs, provided technical guidance, and implemented a broad public relations campaign in the downtown center. 8 alternatives were proposed; businesses chose between them. Results: 44,000 of the 300,000 downtown employees now participate in the program. Also, patronage on the Lindenwold line increased markedly as the peak period (already filled to capacity) expanded.

For further information contact : Mr. Randy Brubaker, Delaware Valley Regional Planning Commission, 1819 John F. Kennedy Boulevard, Philadelphia, Pennsylvania 19103, (215) LO 7-3000.

#### Department of Labor

DOL's accounting office has been on flexitime for some time, and has analyzed the results. A report is available. DOL's Bureau of Labor Statistics has been collecting data since 1973 on alternative work schedules (no hard flexitime data), specifically reports on the 4 day work week. Ms. Janice Hedges did a report several years ago on the experience of 16 firms on alternative work schedules (mostly 4-day weeks).

DOL's Bureau of Labor Statistics has been collecting data since 1973 on alternative work schedules (no hard flexitime data), specifically reports on the 4 day work week.

Ms. Janice Hedges did a report several years ago on the experience of 16 firms on alternative work schedules (mostly 4 day weeks).

For further information contact: Ms. Janice Hedges, U. S. Department of Labor, Washington, D. C. (202) 523-1821.

9:30 to 3:30.<sup>11</sup> An analysis of the program's success is available.

For further information contact: Ms. Laurie May, Environmental Protection Agency, Washington, D. C., (202) 755-2620.

#### Institute for Public Program Analysis

The IPPA has developed computer programs to schedule emergency services employing extended hours (police, fire, etc.). One may purchase (1) a handbook of manual scheduling procedures and (2) actual computer programs for specific occupations. In addition, IPPA conducts an extensive training program in this area. Both computer programs and the training program emphasize manual techniques -- relying on use of a pocket calculator for the actual scheduling.

For further information contact : Dr. Nelson B. Heller or Dr. William Stenzel, Institute for Public Program Analysis, 230 South Bemiston, Suite 914, St. Louis, Missouri 63105, (314) 862-8272.

#### Virginia Martin, Consultant

Ms. Martin has authored several books on the subject, and helped the National Conference on Alternate Work Schedules. She is presently doing a study, with Stanley D. Nollen, on firms using alternative work schedules, containing a comprehensive survey of employers using it, and evaluating their successes and failures. Part I - Analysis of Flexitime - will be available in January.

For further information contact: Virginia Martin, Consultant, 6041 Fort Hunt Road, Alexandria, Virginia 22307. (703) 765-7534.

#### Mathematica, Inc.

Mathematica worked as a consultant to EPA in this area. Dilip Limaye has authored a paper entitled "Energy and Environmental Implications of Alternative Work Schedules."

For further information contact: Mr. Dilip R. Limaye, Mathematica, Inc., P.O. Box 2392, Princeton, New Jersey 08540, (609) 799-2600.

#### National Conference on Alternative Work Schedules

The Conference was held in Chicago in the Spring of 1977. The first major effort was to collect experts on the subject, and present papers. No specific plans for the future, although the "Conference" is viewed as an on-going consortium of experts doing research rather than an event.

For further information contact: Ms. Virginia Martin (see references) or Mr. Chuck Hedges, OST, USDOT, (202) 426-4441.

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<sup>11</sup>All Federal Government programs are restrained by 6:00 a.m. to 6:00 p.m. range -- hours outside those must be subsidized by night differential wage supplements.

## National League of Cities

The Director has done several studies, and written several articles on Flexitime.<sup>12</sup> He advises local governments on the implementation of Flexitime Programs.

For further information contact: Mr. Sam Zagoria, Director, National League of Cities, Labor/Management Relations Service, 1620 Eye Street, N. W., Suite 616, Washington, D. C. 20036, (202) 293-6790.

## Port Authority-Trans Hudson Corporation

With co-sponsorship from the Downtown-Lower Manhattan Association and the Midtown Task Force on Staggered Work Hours, the Port Authority enlisted almost 150,000 people in a staggered hours program aimed at relieving traffic congestion in midtown and lower Manhattan. Operating since 1970, this program has successfully reduced peak activity -- by 26% in peak 10 minutes--and at the 3 busiest downtown subway stations, and by 25% in the peak 15 minutes at the World Trade Center. 85% of the participants interviewed were favorable toward the program; 50% say their home-to-work travel time was reduced. In addition, 22% say their effectiveness at work increased; 4% admit a decrease.

For further information contact: Mr. Carl Selinger, Port Authority-Trans Hudson Corporation, One World Trade Center, New York, New York 10048, (202) 466-8671.

## State Personnel Department (Massachusetts)

Following enactment of a state law in 1974 (Chapter 500 - Massachusetts Part Time Employment Legislation) the State Personnel Department has tried to promote both part-time work (the state's goal is 10% of all workers by 1979; as of 1977 it is less than 3%) and flexitime. This office refers people to sources of information helpful in initiating programs. To date, 1200 state workers are participating in a loosely structured flexitime demonstration program which began in 1976.

For further information contact: Ms. Nan McGuire, Project Director, State Personnel Department, Division of Personnel Administration, State of Massachusetts, 1 Ashburton Place, Boston, Massachusetts. (617) 727-2408.

## U. S. Department of Labor, Employment & Training Administration

Ms. Beverly Bachemin is the program monitor of three extensive research efforts in this subject; all of which should be completed late in 1978:

- Columbia University is conducting a comprehensive literature survey (computerized). To fill in information gaps, they will prepare 6 case studies.

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<sup>12</sup>"When Work Schedules Are Flexible," Washington Post, September 9, 1973.  
"Employers, Employees, Cities Gain by Flexitime", in NLC Newsletter, May, 1974.



Contact: Ms. Natalie Friedman, (202) 280-3989.

- Boston College is preparing 3 case studies on U. S. experiences with alternative work schedule programs -- to help fill in the gaps of the Columbia University study. Contact: Ms. Denise Polit, (617) 969-0100, ext. 4195.
- Rehab. Inc. is a handicapped firm. They are examining the effects of alternative work schedules on handicapped workers and their employers (i.e., the accommodations which must be made for them on these programs). Contact: Ms. Ruth Sablowski, (703) 521-7800.

For further information contact: Ms. Beverly Bachemin, U. S. Department of Labor, Employment & Training Administration, Office of Research & Development, 601 D Street, N. W., Washington, D. C. 20213/

#### Wisconsin State Assembly

In November, 1977, the Wisconsin legislature passed a bill encouraging state agencies to experiment with alternative work schedules and job-sharing (i.e., two workers share a job, work 4 hours per day each). The legislature specified basic project dimensions (core hours, etc.), allowing details to be worked out by each agency. Plans and program designs must be submitted to the state's Department of Employment Relations for approval.

For further information contact: Ms. Rachel Rothchild, Wisconsin State Assembly, 9 West State Capitol, Madison, Wisconsin 53702. (608) 266-7521.



## Chapter III

### ANNOTATED BIBLIOGRAPHY

This selective bibliography was compiled by the staff of Public Technology, Inc. In general, works are included which are recent publications, reflect a local government perspective rather than a highly theoretical one, and pertain to alternative work schedules. This bibliography is organized under these categories--

- I General
- II Flexitime
- III Impacts
- IV User Experiences

#### GENERAL

Anderson, John T. "Impacts of Flexible Work Hours Programs on Energy Consumption in Buildings and Transportation: An Overview." Federal Energy Administration, 1977.

This overview describes FEA's involvement in Flexible Work Hour programs, documents what has been done, and outlines the factors which affect energy consumption in buildings and transportation facilities.

Hedges, Janice Niepert. "A Look At The Four-Day Work-Week." Monthly Labor Review, U.S. Department of Labor, Bureau of Labor Statistics, U.S. Government Printing Office, Washington, D.C., October 1971, 33pp. Reprint Number: 2766.

This article examines the four-day work-week as it is presently used and draws tentative conclusions about its future. It discusses the prevalence of the four-day work-week, trends in work time, arguments for and against, the path ahead, and the impact of the short work-week.

Hedges, Janice Niepert. "How Many Days Make A Work-Week." Monthly Labor Review, U.S. Department of Labor, Bureau of Labor Statistics, U.S. Government Printing Office, Washington, D.C., April 1975.

This article reports on the first national survey of the number of days worked by full-time wage and salary employees. The author discusses the overall patterns of the work-week, current developments, the four day work-week, the growth of the five day work-week, and extended work-weeks.

The Institute for Public Program Analysis. Work Schedules: A Catalogue of Computer Programs, Materials, Training, and Technical Assistance for their Design. 1976.

This catalogue lists and describes some of the resources available to help plan and implement alternative work schedules, such as the use of hand-held calculator programs and other special programs.

Temporary State Commission on Management and Productivity in the Public Sector. "An Introduction To Alternative work Schedules and their Application in the State of New York," February 1977.

This document focuses on three alternative work schedule options: flexitime, the compressed work-week, and part-time employment. It is intended as a preliminary analysis to the implementation of alternative schedules in State and local government.

## FLEXITIME

Fiss, Barbara. Flexitime - A Guide. Civil Service Commission Pay & Leave Administration, U.S. Government Printing Office, Washington, D.C. Document No. 006-000-00809-7 (65¢).

This document explains the basic dimensions of a flexitime program, provides guidance in the planning, development, and implementation of such programs, and assists government agencies in determining the feasibility of flexitime programs in various circumstances.

Hedges, Janice Niepert. "Flexible Schedules: Problems and Issues." Monthly Labor Review, U.S. Department of Labor, Bureau of Labor Statistics, U.S. Government Printing Office, Washington, D.C., February 1977, 62pp.

This article explains the notion of flexitime; problems related to flexitime such as scheduling, supervision, attaining an uninterrupted work flow, costs, and wage and hour laws; and the issues of flexitime, such as overtime pay and shift differentials.

Owen, John D. "Flexitime: Some Management and Labor Problems of the New Flexible Hour Scheduling Practices." Professor of Economics, Wayne State University. The Industrial and Labor Relations Review, Vol. 30, No. 2, January 1977, 152-161pp.

This paper analyzes employee and employer reactions, the applicability of flexitime and the potential for broadening its union attitudes, and overtime effects of flexitime, European-style. The author shows what Americans can learn from the European experience with flexitime.

A Report of the O & M and Productivity Panel of Local Authorities Management Services and Computer Committee (LAMSAC), Project Director: S.R. Barnes. "Flexible Working Hours in Local Government." 3 Buckingham Gate, London, England SW1E 6JH.

This document defines flexible work hour programs and examines their implications for management, how to go about designing and installing a program, special problems, the trade union point of view, and future trends.

## IMPACTS

Bureau of National Affairs, Inc. "Flexible Hours Concept Growing, But Unions Take Dim View of Idea." Daily Labor Report, Washington, D. C., February 13, 1974.

This report examines the reasons for Organized Labor's opposition to variable work hours: the overtime pay controversy; work shift differentials; benefits; the opinions of workers who have experienced flexible hours; impacts on production, and flexible hours in a service organization.

Cohen, Lawrence B. "Work Staggering for Traffic Relief." Frederick A. Praeger, Publishers, New York, New York, 1968.

This book analyzes the impact of a staggered work hours program on Manhattan's Central Business District. The author introduces staggered work hours and discusses traffic congestion and the potential traffic congestion relief, CBD work schedules, the modifiability of work schedules, adaptability of schedule changes, forecasting cordon counts, and the feasibility of work staggering.

Cowley, Thomas F., and Barbara L. Fiss. "Federal Employees See Increase In Productivity." (Excerpted from "Flexitime for Increased Productivity", U.S. Civil Service Commission, Monthly Labor Review, U.S. Department of Labor, Bureau of Labor Statistics, U.S. Government Printing Office, Washington, D. C., February 1977, 66 pp.

This excerpt explains how Federal Agencies using flexitime registered productivity increases of 2% to 5%. It also discusses the impact of flexitime on employee morale and the limitations on the forms of flexitime which can be used by the Federal Agencies.

Hedges, Janice Niepert. "New Patterns for Working Time." Monthly Labor Review, U.S. Department of Labor, Bureau of Labor Statistics, U.S. Government Printing Office, Washington, D.C., February 1973, p.3. Reprint No. 2863.

This article deals with the four day work-week and flexitime. The author explains their expected impacts upon workers, worker productivity, and management, as well as citing the experiences of European countries with alternative work schedules.

Limaye, Dilip R., and Jeffrey P. Price. "Energy and Environmental Implications of Alternative Work Patterns." Mathtech, Inc. (Princeton, N.J.), a paper presented at the National Conference on Alternative Work Schedules, Chicago, Ill., March 1977.

O'Malley, Brendon W. "Work Schedule Changes: Staggered Work Hours in New York." Port Authority of New York and New Jersey. Presented at the seventh summer meeting of the Transportation Research Board National Research Council, Jacksonville, Florida, August 6, 1974.

This report is an overview of a large-scale program aimed at reducing peak period congestion in New York - New Jersey CBDs. The report covers a full range of project considerations such as implementation problems, transportation impacts, surveying, delay patterns, and employer responses.

Safavian, Reza, P. Eng., and Keith G. McLean, P. Eng. "Variable Work Hours: Who Benefits." Traffic Engineering, March 1975.

This article defines "variable work hours", briefly describes the experience of Ottawa, Canada with them, and examines the impacts on model split, transit ridership, traffic distribution, vehicle occupancy, and employee work schedules.

Selinger, Carl S. "Managing Transportation Demand by Alternative Work Schedule Techniques." Paper presented at the "Conference on Transportation Systems Management", Minneapolis, Minnesota, November 9, 1976.

This paper focuses primarily on alternative work schedules as a means of altering peak hour transportation demand. Some basic alternatives are described and evaluated, and several case studies are presented which illustrate successful applications.

Zimring, Marda. "Study of the Impact of Staggered Work Hours on Public Transportation Costs and Service Levels: Phase I, Chicago Transit Authority, Technical Report." Planning and Development Department, Regional Transportation Authority (Northeastern Illinois), 300 N. State Street, Chicago, Illinois 60610, December, 1975.

This document examines staggered work hours from the perspective of the transit operating agency. It studies the staggered work hour programs of lower Manhattan, Ottawa, Toronto, and Philadelphia.

## USER EXPERIENCES

Bureau of Labor Statistics, U.S. Department of Labor. The Revised Workweek: Results of a Pilot Study of 16 Firms. 1975.

This overview documents the experiences of 16 firms which have experimented with alternative work schedules, and analyzes the effects of the programs on the most important labor factors (productivity, quality of work, turnovers, fatigue, safety, etc.).

Golembiewski, Robert T., and Richard J. Hilles. "Drug Company Workers Like New Schedules." Monthly Labor Review, U.S. Department of Labor, Bureau of Labor Statistics, U.S. Government Printing Office, Washington, D. C., February 1977, p. 65.

This report documents a major pharmaceutical company's first 6 months of experience with a flexible work hours program.

Hopp, Michael A., and C.R. Sommerstad. "Reaction at Computer Firm: More Pluses than Minuses." Monthly Labor Review, U.S. Department of Labor, Bureau of Labor Statistics, U.S. Government Printing Office, Washington, D.C., February 1977, p. 69.

This article summarizes the reactions of the management and non-supervisory employees of Control Data Corporation to the alternative work schedules in two operations of Control Data Corp., Aerospace and Microcircuits, three years after the programs were instituted.

Mueller, Oscar, and Muriel Cole. "Concept Wins Converts at Federal Agency." Monthly Labor Review, U. S. Department of Labor, Bureau of Labor Statistics, U.S. Government Printing Office, Washington, D.C., February 1977, p. 71.

This document reports on the experience of the U.S. Geological Survey with flexible work hours. The article examines the limitations imposed, organization and employee effectiveness -- including quantity and quality of work, absenteeism and tardiness -- overtime usage, employee morale and utilization, turnover, employee responsibilities, abuses of hours, leisure time, and building operations and services.







